## AMENDMENT TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application.

### IN THE CLAIMS

1. **(WITHDRAWN)** A process for the preparation of a water soluble metallic nanoparticle coated with a mixed monolayer comprising:
   a) providing a water soluble metallic nanoparticle coated with monolayer of a capture coating component having an affinity for a capture moiety;
   b) mixing the coated nanoparticle of (a) with a shielding coating component in a mixed solvent, the shielding component having metal binding functionality, the mixed solvent comprising at least one substantially water miscible organic solvent and at least one aqueous solvent wherein the mixed solvent is at a pH of less than 7.0; wherein exchange occurs between the shielding coating component and the capture coating component to form a nanoparticle coated with a mixed monolayer; and
   c) optionally isolating the mixed monolayer coated metal nanoparticle of (b).

2. **(CURRENTLY AMENDED)** A process for the preparation of a water soluble metallic nanoparticle coated with a mixed monolayer comprising:
   a) providing;
      i) a metal salt
      ii) a shielding component having metal binding functionality;
      iii) a capture coating component having metal binding functionality and having an affinity for a capture moiety;
      iv) a suitable reducing agent; and
      v) a mixed solvent comprising at least one substantially water miscible organic solvent and at least one aqueous solvent wherein the mixed solvent is at a pH of less than 7.0;

b) mixing elements (i) – (iv) in the mixed solvent of (v) to form a reaction mixture, ~~wherein the final concentration of water in the reaction mixture is from about 9% to about 18% V/V, and~~ wherein a mixed monolayer forms on the metallic nanoparticle; and

c) optionally isolating the mixed monolayer coated metal nanoparticle of (b).

**3.** **(WITHDRAWN)** A process for the synthesis of a water soluble metallic nanoparticle coated with a mixed monolayer comprising:

a) providing a first reaction mixture comprising:

(i) a metal salt

(ii) a shielding component having metal binding functionality;

(iii) a capture coating component having metal binding functionality and having an affinity for a capture moiety;

(iv) an organic solvent;

b) providing a second reaction mixture comprising a suitable reducing agent in an aqueous solvent; wherein the second reaction mixture is at a pH of less than 7.0; and

c) mixing the first and second reaction mixtures wherein the final concentration of water in the mixture is from about 9% to about 18% V/V, and wherein a water soluble metallic nanoparticle coated with a mixed monolayer is formed.

**4.** **(WITHDRAWN)** A process for the preparation of a water soluble metallic nanoparticle coated with monolayer of a capture coating component comprising:

a) mixing a metal salt with a capture coating component having an affinity for a capture moiety, the capture coating component comprising a metal binding functionality to form a first reaction mixture, wherein the first reaction mixture is at a pH of less than 7.0; and

b) adding a suitable reducing agent to the first reaction mixture of (a) to form a second reaction mixture comprising metal nanoparticles coated with said capture coating component.

**5.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein the metal of the metallic nanoparticle is selected from the group consisting of; gold, silver, platinum, palladium, iridium, rhodium, osmium, iron, copper, cobalt, and alloys composed of these metals.

**6.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein the metal salt is selected from the group consisting of $HAuCl_4$, $AgNO_3$, $Cu(CH_3CO_2)_2$, $Cu(NO_3)_2$, $HPtCl_6$, and $K_2PdCl_4$.

**7.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein the capture moiety is selected from the group consisting of: peptides, proteins, nucleic acid fragments, collagen, nano-rods, nano-tubes, nano-planes and nano-fibers.

**8.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein said capture coating component is selected from the group consisting of

a) molecules having reactive groups selected from the group consisting of: $-NH_2$, -COOH, -CHO-, -OH, -X (Cl, Br, I), succinimide, and epoxy groups; and

b) biomolecules selected from the group consisting of: peptides; tiopronin and GSH.

**9.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein the metal binding functionality binds metals selected from the group consisting of gold, silver, platinum, palladium, iridium, rhodium, osmium, iron, copper, cobalt, and alloys composed of these metals.

**10.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein said metal binding functionality is an SH group and said metal is gold.

**11.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein said at least one substantially water miscible organic solvent is selected from the group consisting of; $C_1$-$C_6$ alkanols, dimethyl sulfoxide, tetrahydrofuran, dimethylformamide, Dioxane, and acetone.

**12.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein said at least one aqueous based solvent is selected from the group consisting of; water, and acetic acid.

**13.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein said suitable reducing agent is selected from the group consisting of $NaBH_4$, lithium triethylborohydride and hydrogen peroxide.

**14.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein said shielding component is selected from the group consisting of short chain ethylene glycol oligomers, ethylene glycol methacrylate, sugars, crown ethers, and acrylamide.

**15.** **(ORIGINAL)** A process according to Claim 14 wherein said shielding component is a short chain ethylene glycol oligomer.

**16.** **(ORIGINAL)** A process according to Claim 15 wherein the short chain ethylene glycol oligomer has a molecular weight less than the entanglement molecular weight.

**17.** **(ORIGINAL)** A process according to Claim 15 wherein the short chain ethylene glycol oligomer is selected from the group consisting of tetraethylene glycol thiol and diethylene glycol thiol.

**18.** **(WITHDRAWN)** A process according to Claim 1 wherein after step (b) the metal nanoparticles coated with said capture coating component are optionally isolated and fractionated.

**19.** **(PREVIOUSLY PRESENTED)** A process according to Claim 2 wherein the shielding component comprises at least 50% of the mixed monolayer.

**20.** **(WITHDRAWN)** A process for the preparation of a water soluble gold nanoparticle coated with a mixed monolayer comprising:

a) mixing a gold salt with tiopronin, the tiopronin comprising a SH functionality, together in a mixed solvent to form a first reaction mixture, wherein the first reaction mixture is at a pH of less than 7.0, and the mixed solvent is comprised of alcohol and water;

b) adding $NaBH_4$ to the first reaction mixture of (a) to form a second reaction mixture comprising gold nanoparticles coated with said tiopronin;

c) adding short chain ethylene glycol oligomers having an SH functionality wherein a mixed monolayer comprising tiopronin and the short chain ethylene glycol oligomers is formed on the gold particle and the nanoparticle is water soluble; and

d) optionally isolating the mixed monolayer coated gold nanoparticle of (c).

**21.** **(WITHDRAWN)** A process according to Claim 20 wherein the short chain ethylene glycol oligomer has a molecular weight less than the entanglement molecular weight.

**22.** **(WITHDRAWN)** A process according to Claim 20 wherein the gold salt is $HAuCl_4$.

**23.** **(WITHDRAWN)** A water soluble metal nanoparticle coated with a mixed monolayer, the mixed monolayer comprising a shielding coating component having metal binding functionality, consisting of ethylene glycol and a capture coating component having a binding functionality for a capture moiety.

**24.** **(WITHDRAWN)** A water soluble metal nanoparticle of Claim 23 wherein the metal is selected from the group consisting of; gold, silver, platinum, palladium, iridium, rhodium, osmium, iron, copper, cobalt, and alloys composed of these metals.

**25.** **(WITHDRAWN)** A water soluble metal nanoparticle of Claim 23 wherein the capture moiety is selected from the group consisting of; peptides, proteins, nucleic acid fragments, collagen, nano-rods, nano-tubes, nano-planes and nano-fibers.

**26.** **(WITHDRAWN)** A water soluble metal nanoparticle of Claim 23 wherein said capture coating component is selected from the group consisting of:

a) molecules having reactive groups selected from the group consisting of: $-NH_2$, -COOH, -CHO-, -OH, -X (Cl, Br, I), succinimide, and epoxy groups; and

b) biomolecules selected from the group consisting of: peptides; tiopronin and GSH.

**27.** **(WITHDRAWN)** A water soluble metal nanoparticle of Claim 23 wherein the metal is gold and the capture coating component is tiopronin.

**28.** **(WITHDRAWN)** A water soluble metal nanoparticle of Claim 23 wherein the shielding coating component is a short chain ethylene glycol oligomer.

**29.** **(WITHDRAWN)** A water soluble metal nanoparticle of Claim 28 wherein the short chain ethylene glycol oligomer has a molecular weight less than the entanglement molecular weight

**30.** **(WITHDRAWN)** A water soluble metal nanoparticle of Claim 23 wherein the shielding component comprises at least 50% of the mixed monolayer.

**31.** **(WITHDRAWN)** A process for immobilizing a capture moiety comprising contacting the water soluble metal nanoparticle of Claim 23 with a capture moiety under conditions that permit the binding of the capture moiety to the capture coating component wherein the capture moiety is immobilized.

**32.** **(WITHDRAWN)** A process according to Claim 30 wherein the metal is gold and the capture coating component is tiopronin and the capture moiety is selected from the group consisting of; proteins and nucleic acids.

**33.** **(NEW)** A process as recited in Claim 2, wherein the final concentration of water in the reaction mixture is from about 5% to about 20% V/V.

**34.** **(NEW)** A process as recited in Claim 33, wherein the final concentration of water in the reaction mixture is from about 9% to about 18% V/V.